

World Trade Center New Employee Orientation

- Site Safety Structure
- Site Layout Map
- Site-wide Work Rules
- Contractor/Service-Specific Work Rules
- Specific Site Safety Issues & Controls
- Field Orientation

Joint Safety & Health Activities

- Instructor Introductions
- Joint Safety & Health Committee
- Joint Site Inspections
- Working Together for a Safer Job

Joint Labor/Management Environmental Safety and Health Committee

- Purpose: To advise on ES&H issues
- Membership:
 - Tri-chairs: NYC BCTD, BTEA, NYC DDC
 - Prime Contractor representatives – 4
 - General Contractors Association – 1
 - Site Union representatives – 6

WTC Site Map

- Badges & Security – Entry & Exit
- Traffic Lanes – 10 mph Maximum Speed!
- First Aid Stations
- Site Evacuation Routes
- PPE zones
- Eyewash & Showers

Emergency Telephone Number

212-747-9193

Contractor/Agency Zone Map

- Site Description & Project Expectations
- Location of written safety programs
- Compressed gas storage areas
- Subcontractor activities
- PPE use zones
- Fuel depot and equipment refueling

General Site Policies

- Site ES&H program
- Labor-Management Partnership for Safety
- Disciplinary Warning Policy for Safety
- Drug & Alcohol Policy
- Non-Discrimination Policy
- Roles of Firefighters, Police & Construction

Safety Rules

- Dust Control & Fire Suppression
- Traffic Rules
- 100% Fall Protection Above 6 feet
- 100% PPE Compliance on Site
- Injury & Incident Reporting
- Exit the site CLEAN
- Crime Scene Activities & Human Remains

Traffic

- Project SPEED LIMIT 10 MPH !
- Stay clear of traffic lanes
- Stay clear of areas where you don't belong
- Be alert for backup alarms and vehicles
- Watch for overhead debris& collapse hazards
- Use covered and marked walkways
- Do not walk under live loads

Mandatory Personal Protective Equipment at Ground Zero

- Respirators (in defined zones)
- Hard hats
- Safety glasses with side shields or goggles
- Long pants, long sleeve work shirts, and coveralls
- High Visibility Clothing/Reflective Vests
- Steel-toed, heavy duty work shoes

Respiratory Protection Requirements

- Debris Area or Where Debris is Moved
 - Half-face respirator with combination P100 filter/acid gas/organic vapor cartridge
- Dusty areas within restricted zone/marina
 - Half face respirator with HEPA filter (P100, N95 or equivalent)
- Other areas with dust or smoke
 - Dust mask (P100 or N95 or equivalent)

PPE Program

- Hazard assessment to determine need for PPE
- Medical Clearance for PPE Use
- PPE selection and fitting
- Training
 - When PPE is needed
 - What PPE is needed
 - Use and limitations of PPE
 - Care and maintenance of PPE

Reporting Incidents or Hazardous Conditions

- Report work-related injuries and illnesses, imminent danger situations, or other incidents to your supervisor & steward
- New or expanding fires should be immediately reported to fire department

EMERGENCY Phone: 212-747-9193

Reportable Incidents Involving Workers

- Work-related injuries or illnesses
- Exposures to hazardous substances above allowable exposure limits
- Electrical shocks or arc flashes
- Near misses

Reportable Incidents (Continued)

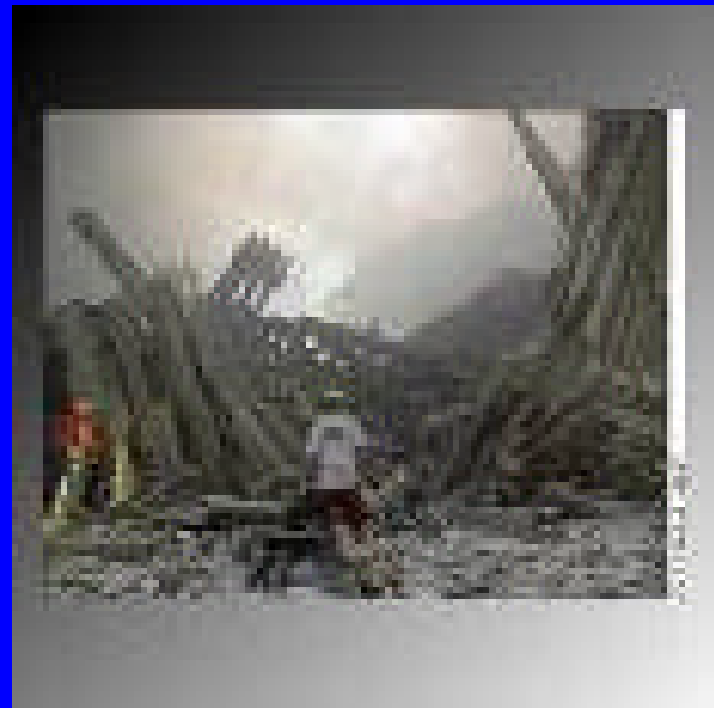
- Crane, rigging, or material handling accidents
- Property/vehicle/equipment damage
- Unplanned fires or explosions
- Spills or releases to the environment
- Unexpected contact or damage to utilities
- Discovery of unknown or potentially hazardous debris, containers or other materials

Stop Work If ...

- You face unsafe conditions not previously addressed
- You face an imminent danger situation
- The scope of work changes from the safety briefing
- You find bodies or body parts
- You find unknown or potentially hazardous objects or materials

WTC Ground Zero Hazards

- Safety hazards
- Chemical hazards
- Physical hazards
- Confined space hazards
- Biological hazards
- Other hazards



Safety Hazards

- Falls from heights
- Collapses
- Struck by/against and caught in/between
- Fires and Burn Hazards

Fall Protection

100% fall protection when
working more than 6 feet
above a lower surface

Types of Fall Protection

- Guardrails
 - Around excavations, holes, building edges, and wherever else possible.
 - On aerial lifts, crane manbaskets, scaffolds
- Personal fall protection systems
 - Fall arrest – stops falls
 - Fall restraint – prevents falls

Personal fall protection systems

- **Harness**
- **Lanyard**
- **Vertical or horizontal lifeline**
- **Adequate anchorage point**
- **Always inspect before use**

Aerial Lifts/Crane Baskets

- Aerial lifts (JLG, Genie, etc.)
 - Must wear harness/lanyard as fall restraint
 - Secure lanyard ONLY to approved lift anchor
 - Make sure railings, doors, chains are in place
 - Do not climb on rails or use ladders, boxes, etc.
- Crane manbaskets
 - Must wear harness/lanyard as fall restraint
 - Secure lanyard to independent anchor on crane, NOT crane basket

Surface and Trench Collapses

- Competent person must check excavation sites at start of each shift and as needed
- Surface collapses
 - Comply with approved demolition plan before removing girders, large chunks of concrete, etc.
- Trench collapses (cave-ins)
 - Have proper access and way to escape
 - Use proper protective devices (benching, shoring, sloping, trench boxes)

Aerial Lift and Crane Collapses/Tipovers

- Make sure you are trained in use of model of equipment you will be working on
- Inspect equipment at start of shift
- Make sure surface is stable
- Don't exceed rated load limits
- Don't exceed boom extension limits
- Watch for struck by/against accidents
- Follow all manufacturers directions

Struck By and Caught In/Between Working Near Heavy Machinery

- Stand clear of operating equipment and vehicles
- Wear high visibility/reflective clothing!
- Be alert for backup alarms on vehicles
- Avoid entering crane swing radius
- Use tag lines when lifting loads
- Use spotters during lifting operations

Struck By/Against Hazards

- Falling debris
 - Barricade off falling object hazard areas
 - Wear hard hats at all times
- Sharp objects in debris
 - Work gloves
 - Protective clothing

Fires & Burns

- Be alert for hot steel, hot debris and smoke
- Fires should be immediately reported to fire department
- Hot Work Procedures
- Fuel & compressed gas cylinders

Fire or Emergency CALL: 212-747-9193

Storage of Compressed Gas Cylinders

- Separate oxygen cylinders from fuel cylinders by at least 20 feet, unless protected by fire wall
- Store acetylene cylinders upright
- Protect against falling and high temperature
- Protect against falling objects
- Do not store in unvented areas
- Cap & secure cylinders

Refueling Area Setup

- Refuel vehicles ONLY in designated area
- Refueling areas must be at least 50 feet from other operations and storm drains
- Fuel storage and filling areas are marked “No Smoking or Open Flames”
- Locate disconnect switches for refueling equipment away from refueling areas
- Spill control and cleanup materials available
- An ABC fire extinguisher shall be located 25-75 feet from refueling operations

Refueling Area Operations

- Allow portable equipment time to cool down before refueling
- Shut down spark-producing equipment
- Dispensing nozzles must have automatic shutoff and not have “latch open” device

Portable Fuel Cans

- NO plastic containers! Use only properly labeled and approved containers
- Do not store in direct sunlight
- Relieve pressure buildup away from ignition sources (hot surfaces, sparks)

Chemical Hazards

- Chemicals brought on site
- Chemicals possibly present in WTC debris and air

Chemicals Brought on Site

Substance	Skin/Eye Contact	Inhalation	Ingestion
Diesel fuel	X	X	X
Acetylene gas	X	X	
Greases, oils, hydraulic fluids, cutting oils	X	X	X
Gasoline, petroleum distillates	X	X	X

Material Safety Data Sheet Sample

Material Safety Data Sheet	
Manufacturer's Name _____	Symptoms of Exposure _____ _____ _____
Product Name _____	Safe Handling and Use _____ _____ _____
Physical Hazards _____ _____	Protective Measures _____ _____ _____
Health Hazards _____ _____	

You must be trained in how to read MSDSs

Chemicals Possibly Present in WTC Debris and Air

- Dusts
 - asbestos, crystalline silica, fiberglass dust, toxic metals (arsenic, lead, chromium)
- Smoke
 - particulates
 - Benzene, carbon monoxide, hydrogen chloride, hydrogen sulfide, PCBs, PAHs,
- Others:
 - exhaust from vehicles and gas-powered tools
 - Freon

Chemical Safety

- Prevent inhalation
 - respirators
- Prevent skin/eye contact
 - Safety glasses with side shields or goggles
 - Proper gloves and protective clothing
- Prevent ingestion
 - NO eating, drinking, smoking, chewing tobacco except in designated areas!

Avoid Taking Home Contaminants

- Wash Hands & Face
- Shower After Work Where Available
- Change into Street Clothes After Work
- Store Street Clothes in Clean Area
- Wash Work Clothes Separate from Family's

Physical Hazards

- Cold
- Heat
- Noise
- Electrical hazards
- Manual lifting

Cold

- Can cause frostbite, hypothermia
- Contributing factors:
 - Damp, windy, or wet weather
- Prevention:
 - Warm, dry clothing
 - Work breaks in warm shelters

Heat

- Can cause heat stress, heat exhaustion, heat stroke
- Contributing factors:
 - Temperature, humidity, heavy work, continuous work,
 - Fires, hot surfaces
- Prevention:
 - Proper type of clothing
 - Work breaks in cool area

Noise

- Can cause hearing loss
- Action level of 85 decibels triggers hearing conservation program
 - Noise monitoring
 - Worker protection
 - Engineering controls (quieter equipment)
 - Administrative controls (job rotation)
 - Hearing protection (ear plugs, ear muffs)
 - Hearing tests
 - Training

Electrical Hazards

- Electrical shock and electrocution
- Electrical burns
- Arc flash burns
- Arc blast effects
 - hearing loss, pressure wave
- Falls
- Fire

Electrical Safety

- Watch for buried power lines. Don't assume they are de-energized.
- Keep all metal ladders and other conductive objects away from live circuits/power lines
- Make sure all electrical outlets have GFCIs
- Use only hard or extra-hard usage extension cords with 3 prongs
- Properly maintain electrical cords & equip.

Power Tools and Equipment

- Use only tools and equipment labeled for wet or damp areas
- Make sure plugs have 3 prongs or are double-insulated
- Inspect cords for exposed wires, frayed, spliced or taped cords or other damage
- Tag defective equipment and remove from service

Equipment Maintenance Lockout/Tagout

- Lock and tag all energy sources of equipment you will work on
 - Each person working should install own lock
- Released stored energy
- Before removing locks after working on equipment, notify others in area and check area
- Make sure you are trained and know written Lockout/Tagout Program

Manual Lifting

- Can causes back pain and injury
- Use proper lifting techniques
 - Use lifting devices or get help for heavy loads
 - Avoid bending or twisting while lifting
 - Hold loads centered and close to the body
 - Arrange lifting tasks to keep load between knuckle height and shoulder height
 - Avoid repeated one-handed lifting
 - Rotate continuous lifting tasks

Confined Spaces

Site ES&H Plan calls for each contractor to comply with 29 CFR 1910.146 (OSHA Permit-Required Confined Space Standard) and have a plan reviewed by DDC.

Confined Space Definition

Confined Space

- Large enough for human entry
- Limited or restricted entry or exit
- Not meant for human occupancy

Permit-Required Confined Space

Confined Space Hazards

- Oxygen deficiency
 - Other gases crowd out oxygen
- Toxic gases
 - carbon monoxide from fires & engines
- Collapses
 - trench cave-ins, underground collapses

Confined Space Safety

- Permits required for all confined space entry
- Confined Space Entry Program
 - Measures to prevent unauthorized entry
 - Identification of hazards and testing
 - Safe entry and rescue procedures
 - Proper PPE, equipment for testing, rescue, etc.
 - Outside attendant(s)
 - Additional specific training of all involved personnel

Biological Hazards

- Animal bites and insect stings
 - Report animal bites and stings to first aid station for evaluation and treatment
 - Use mosquito repellent during mosquito season
 - Report bee/wasp allergies to employer safety officer prior to working at WTC site
- Bird droppings
 - May cause illnesses if inhaled or accidentally eaten
 - Respirators and protective clothing may be needed in nearby buildings if significant amounts are present

Other Hazards

- Post-Traumatic Stress Disorders
- Night work
 - Poor lighting
 - Body rhythms
- Extended hours
 - Fatigue
- Exhaust/Carbon Monoxide

Information on Additional Training

- Contractor & Trade Specific Training
- Specialty Training is Available and Training Needs Should be Communicated through Union Stewards to the Joint S&H Committee
- New hazards may arise requiring additional training for all site workers.

Respiratory Protection

Respirators

Types of Respirators on Site

- Half Face respirators
- Full Face Respirators
- Different brands



Respirators

Types of Cartridges

- P100
 - filters out toxic and nuisance particles
 - Color: Purple/Magenta
- Acid Gas and Organic Vapor Combination Cartridge
 - Filters out vapors like benzene and solvents
 - Filters out sulfuric acid gas
 - Color: Yellow

Respirators

Requirements to wear

- Facial Hair
- Medical evaluation/examination
 - Workers must be evaluated and obtain medical clearance to make sure that wearing a respirator will not present health risks for them individually
 - Fit Testing on brand, model, and size you will wear
 - Qualitative
 - Quantitative
- Training

Respirators

Daily Procedures

- Inspection
 - Clean
 - Filters/Cartridges
 - Valves
- Fit Checks
 - Positive and Negative fit checks
- Cleaning and Storage

Respirators

- Negative Pressure Check
- EVERY TIME
You put it on!



NEGATIVE PRESSURE FIT CHECK

Block ends of cartridges with hands. Inhale. If mask caves in, you have a tight fit.

Respirators

- Positive pressure
Check

•EVERY TIME

You put it on!



POSITIVE PRESSURE FIT CHECK
*Place palm over exhalation valve.
Exhale gently. If mask balloons,
you have tight fit.*

Respirator Limitations

- Site respirators filter air, they do not supply air, so they are useless in an oxygen deficient atmosphere.
- Filters can become clogged, being harder to breath through. Change regularly.
- Acid Gas/Organic Vapor Cartridges can become saturated and useless. Cartridges should be changed according the schedule in the Contractor's Respiratory Protection Program.

Respirators

- If the respirators doesn't seem to fit, ask for a new brand or size and get refitted.
- If you feel bad while wearing a respirator, ask about a new medical evaluation.
- If you have any questions about respirators, ask for your employers' program administrator or written program.

Trade/Contractor Specific Hazards and Work Rules

Field Orientation

Follow the instructor back to the site
for a visual review of key locations